

SWBAT

calculate unknowns for projectiles

Sep 4-7:31 AM

Welcome!!!

SECA CP Physics
Thursday 10 December 2015

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Room C-244

Centering
(music)

- Show me you are passing on SchoolView, or secure phone!
- Pg 43 & 45 homework!!!
- show me completed projectile packet

Opening Activity - Quick Write!

What are the variables (symbols)
in the UAM equations?

What do they stand for?

What are their units?

Δx : DISPLACEMENT m
 Δt : CHANGE IN TIME sec.
 v_i : VELOCITY INITIAL m/s
 v_f : VELOCITY FINAL m/s
 a : ACCELERATION m/s² = m/s/s

<https://www.youtube.com/watch?v=s17XDrKuqc4>

He's a pirate, Think

<https://www.youtube.com/watch?v=HqYnevHibal>

Sep 7-7:04 AM

What we should have solid:

- Memorize our 5 vocab cards, units, vector or not, definition, formula
- Be able to answer distance vs displacement questions
- Be able to make measurements of real-life motion. Know what is likely to make timing things difficult and how to get more reliable timing results
- Be able to convert between miles and meters, between hours, minutes, and seconds
- Be able to calculate speed = dist/time and velocity = disp/time
- Know what all of the symbols in the UAM equations stand for and mean
- Be able to turn a UAM word problem into a list of knowns and unknowns
- Be able to pick the equation with those 4 things in it
- Be able to put the knowns into that equation
- (Be able to solve for the unknown)

→ PROJECTILES: v_x IS CONSTANT; $a_y = -9.8 \text{ m/s}^2$ ^{v_y CHANGES} PG 42
 PG 43 TIME, Δt , CONNECTS x & y

QW every day to review? Volunteer answers on board?

Dec 4-9:15 AM

Unit	Chapters	Date
Left-Side Items	Page	Right-Side Items
REFLECTION ON NOTES	2	TED ED ADAM SAVAGE
HOW FAR FROM BRIDGE	4	"FORT STUEBEN"
REFLECTION ON NOTES	6	HWK: BASIC UNITS
PR: DISTANCE & DISPLACEMENT	8	HWK: FP DISPLACEMENT
DIAGRAM & STEPS	10	TIMING & ERROR
SUMMARY OF TIMING	12	HOW TO BUILD A TABLE
PR: CONVERTING SOLNS.	14	HWK: FP CONVERSIONS
PR: VELOCITY & SPEED	16	HWK: FP SPEED & VELOCITY
SPEED WORD PROBLEMS	18	ALGEBRA FOR PHYSICS
LAB JOURNAL 10/7	20	LAB JOURNAL 10/8
LAB JOURNAL 10/12	24	HWK: FP GRAPHS POSITION
26	USE FOR PROJECT	27
OBSERVATIONS OF ORF	28	FP: INTRO TO ACC.
REVIEW FOR TEST	30	BALL ON RAMP
VECTORS, DIRECTION	32	FP: BASIC ACC EXAMPLE
PRACTICE UAM	34	FP: INTRO TO UAM
FALLING OBJECTS PACKET	36	FP: INTRO TO FREEFALL
MY FREE FALL WORD PROBLEM	38	3-ACT FALLING GLOWSTICK
Toy popper experiment	40	Free fall class solutions
Launched vs. Dropped	42	FP: INTRO TO PROJECTILE MOTION
PROJECTILE SIMULATOR	44	FP: PROJ. MOTION PROBLEM

Sep 5-9:09 AM

Experiment with Projectiles

Google "Phet projectile motion"

What conclusions can you draw???

$$90^\circ < \text{ANGLE} < 45^\circ$$

Try projectile practice problem for tomorrow!

Pg 43 - Extra space?

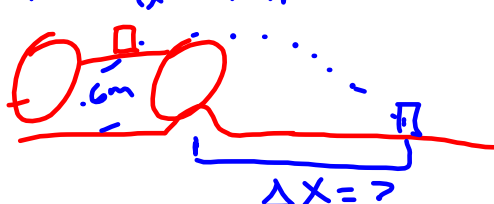
What were our conclusions?

- AS INITIAL SPEED INCREASES, THE ANGLE INCREASES
 - AS MASS INCREASES, THE ANGLE STAYS THE SAME
 - AS MASS INCREASES, THE INITIAL SPEED STAYS THE SAME
 - AIR RESISTANCE INCREASED, RANGE DECREASES
- SHOOTING HORIZONTAL
INCREASING INITIAL SPEED
- RANGE INCREASED
 - TIME STAYS THE SAME
 - HEIGHT STAYS THE SAME

Dec 8-9:11 AM

Practice Problem...

b) $v_{ix} = 14 \text{ mph}$



c) $\Delta x = ?$
 $v_{ix} = 14 \text{ mph}$

$V_x = \frac{\Delta x}{\Delta t}$

$a_y = -9.81 \text{ m/s}^2$
 $\Delta y = -.6 \text{ m}$
 $v_{iy} = 0$

$\Delta t \leftarrow \Delta t = ?$

d) EQN: $V_x = \frac{\Delta x}{\Delta t}$
 $\Delta y = v_{iy} \Delta t + \frac{1}{2} a_y \Delta t^2$
SOLVE FOR Δt

Dec 10-9:18 AM